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CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
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REPORT

50X1-HUM

CD NO.

COUNTRY USSR

DATE OF
INFORMATION 1950 - 1951

SUBJECT Economic - Ferrous, and nonferrous metallurgy

DATE DIST. /7 Apr 1951

HOW
PUBLISHED Monthly periodical; daily newspapersWHERE
PUBLISHED USSR

NO. OF PAGES 4

DATE
PUBLISHED Jan - Feb 1951SUPPLEMENT TO
REPORT NO.

LANGUAGE Russian

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SOURCE Periodical and newspapers as indicated.

USSR MINE INDUSTRY OUTLINES 1950 GAINS, 1951 PLANS;
CHIATURA MANGANESE OUTPUT UP

[Numbers in parentheses refer to appended sources.]

MINE OUTPUT AND MECHANIZATION REACH NEW HIGH

The mining of metallic and nonmetallic ores is now above the prewar level. The mines of the Krivoy Rog iron basin have undergone radical rebuilding. New systems of mining, such as block caving, forced block caving with the use of deep blast holes for breaking down the ore, the improved variant of the system of sublevel drifts, and others, have gained wide recognition and use. Magnetic concentration of worked-out ores has been introduced in an effort to cut losses of metal in mining. Mines and shafts in the basin have obtained new drill hammers, drills for deep boring, loading machines, electric locomotives, and other modern mining equipment. The level of mechanization of the basic processes in the Krivbass has reached 94-98 percent.

New methods of concentrating manganese ores by specially designed electromagnetic separators, high-frequency jigging machines, and the flotation process are being introduced.

Highly mechanized quarries mining flux limestones have been built and equipped with the newest electric excavators with 3-cubic-meter bucket capacity, steam cranes with 25-ton capacity, heavy-duty terracing plows, and track-moving machines. In particular, much has been done at these enterprises to build crushing and screening plants operating on a two-stage crushing system. Enterprises of the nonmetallic ore industry can now completely meet the demands of southern metallurgical plants for limestone.

Considerable success has been achieved in nonferrous mining enterprises. A number of mines have converted from the top-slicing method to the more productive methods of block caving and forced block caving with deep vertical and inclined blast holes. High-speed methods of advancing mine workings have been adopted widely in the aluminum, nickel, and copper industries. New technology has permitted the attainment of a speed of advancing horizontal

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workings of 270 meters a month per stope. Mining of nonferrous ores by open-pit methods has increased. Quarries mining copper and nickel ores have been amply supplied with electric excavators, drills, transport equipment, and terracing and track equipment. Truck transport is being used more and more in quarries.

The tasks of obtaining still further increases in mining and in ore quality lie ahead in the second five-year period for mines of ferrous and nonferrous metallurgy. The development of the mining industry must be such that the ore base of all branches of the industry will outstrip the development of metallurgical plants, making it possible to meet the demands for metallic and nonmetallic ores, to enable uninterrupted operation of metallurgical plants, and to maintain uniform ore quality. The most immediate task of mining enterprises is to finish the complex mechanization of mine operations by the use of heavier equipment. Deep blast holes for breaking down the ore must be used more extensively. Speed of drilling is not high, although certain mines have been testing various types of drilling machines. All these tests should be gathered together for review, and then the best drilling machine should be chosen and put into series production.

The introduction of deep drilling also depends on the cutting tool. In 1951, research on the design of a dependable drill bit should be stepped up. Research work so far has not met the demands of the miners, as is evidenced by the low speed and low durability of the drills.

Output of heavy-duty scraper winches should be increased to heighten the productivity of blocks and individual stopes. The use of three-drum, 45-kilowatt scraper winches, as shown in practice, increases the productivity of a block 100-150 percent. These winches should first be introduced in mines which are working thick deposits. Intensification of the process of breaking down and hauling of the ore should be followed immediately by changes in the transport and hoisting of ores. Having introduced heavy equipment for drilling, loading and hauling ores, the problems of expanding transport facilities to carry heavier loads must next be solved.

The capacity of compressor stations must keep pace with the increased ore output. In some enterprises, the compressor station capacity is not sufficient and leads to decreased productivity of the drill operators.

The high degree of mechanization in mining demands good organization of the repair and supply of spare parts. Output of the latter in plants producing mining equipment must be increased to add to the fund of spare parts produced by mine repair shops. The smaller enterprises are most in need of spare parts.

In open-pit mining, the most immediate task is the electrification of transport, since the low capacity of transport facilities, based on the use of steam locomotives, will hinder further increases in output. The Ural iron ore and the southern limestone quarries must be electrified in the next few years. The use of diesel-electric locomotives will be the fastest method of speeding electrification of quarries, particularly in quarries mining nonmetallic ores, and will sharply increase transport capacity.

The low capacity of dump cars is already hindering a further increase in the mining of ferrous and nonferrous metal ores by open-pit methods. Of utmost urgency is the development of 1,000-1,200 kilowatt diesel-electric locomotives designed for quarry work and 60-80-ton dump cars.

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In 1951, track operations in quarries should be mechanized by the use of cranes, track-moving machines, and tractor levellers. In 1951, many quarries will be equipped with 10-ton dump trucks. The first tests of the use of 5-ton dump trucks showed that the technological process at the quarry was considerably simplified and was easily adopted by enterprises using the open-pit method for the first time. The use of heavy-duty dump trucks will place even greater demands on automobile-repair and road-maintenance facilities. Certain quarries have failed to provide these facilities, with the result that the entire enterprise is frequently paralyzed by the breakdown of the trucks.

Enterprises working thin deposits need special equipment such as small loaders, electric locomotives, and cars. This problem must be solved by designers in institutes and machine-building plants in the immediate future.

Every mining enterprise must have a plan for the introduction of new technology and the mechanization of operations, and of all phases of production, including auxiliary operations. Mine directors must also undertake an extensive program of training workers and increasing their skills, particularly in the servicing of machines and mechanical equipment.(1)

CHIATURA TRUST CITES IMPROVEMENTS

In 1950, the production of commercial manganese in the Georgian SSR increased 16 percent over the 1949 production.(2) The "Chiaturmanganets" Trust, by 1 September 1950, had overcome the lag which had occurred in the first quarter of the year and completed the year plan for output of finished production ahead of schedule. New tasks face the trust in 1951. The first step is to provide for uninterrupted operation of each mine under winter conditions so that last year's experience will not be repeated. Mechanization must be more widely introduced, particularly in the loading of the ore directly in the stopes.

In solving the problem of mechanized loading in the stopes, the chair of mine transport and machinery of the Georgian Polytechnical Institute is scheduled to play an important role. A brigade of scientific workers, headed by N. Tkemaladze, Candidate in Technical Sciences, has already started experimental work toward this goal.

Tests have shown the complete adaptability of the transportable, dismountable mine supports, designed by G. Tsulukidze, to the conditions prevailing at Chiatura. In 1950, more than 800,000 rubles were saved by the use of these supports. They must be introduced on a wider scale in 1951 so that all stopes will have them.

Much must be done to increase the output of first-grade commercial manganese ore. The work on this is not being done on a sufficiently wide scale. Considerable improvement in concentration technology should be achieved by remodeling of existing jigging machines and installation of completely new types of machines. These steps will help the concentration plants to achieve a considerable increase in the output of first-grade washed ore.

Until now the Chiatura deposit has been worked by underground methods. In 1950, the open-pit method was used for the first time in mining a certain sector of the manganese seam. All processes (breaking, loading, hauling), have been completely mechanized at the Bunikauri sector of the Mine Administration imeni Ordzhonikidze, and the mining of ore will begin soon. The open-pit method should be used in other sectors, first of all at the Itkhvisi upland of the Mine Administration imeni Dimitrov.

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A large amount of work has been planned in the field of capital construction. The 1951 plan provides for the building of approximately 8,000 square meters of housing, communal-service buildings, polyclinics, passenger cableway, and other structures.(3)

SOURCEC

1. Moscow, Gornyy Zhurnal, No 1, Jan 51
2. Moscow, Krasnaya Zvezda, 10 Feb 51
3. Tbilisi, Zarya Vostoka, 5 Jan 51

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